

AMENDMENTS TO THE CLAIMS

This listing of the claims below will replace all prior versions and listing of claims in this application.

1. (Currently amended) A method for inducing differentiation of cardiomyocytes from pluripotent stem cells or cells derived therefrom, comprising

(1) ~~culturing stem cells in the presence of a culture medium including~~ a substance that inhibits BMP signaling during the pre-differentiation stage and/or within the first five days of the differentiation-inducing stage; and ~~to induce differentiation~~

(2) obtaining cardiomyocytes.

2. (Currently amended) The method according to Claim 1, wherein the step of culturing stem cells ~~to induce differentiation~~ comprises a step of forming embryoid bodies by floating aggregation culture.

3. (Currently amended) The method according to Claim 1, wherein the step of culturing stem cells ~~to induce differentiation~~ comprises a step of co-culturing with feeder cells.

4. (Currently amended) The method according to Claim 1, wherein the step of culturing stem cells ~~to induce differentiation~~ comprises a step of plate culturing on a culture container.

5. (Currently amended) The method according to Claim 1, wherein said culturing occurs comprising a step of treating the stem cells with the substance that inhibits BMP signaling during within the first five days of the differentiation-inducing stage.

6. (Currently amended) The method according to Claim 1, wherein said culturing occurs comprising a step of treating the stem cells with the substance that inhibits BMP signaling during the pre-differentiation stage.

7. (Currently amended) The method according to Claim 1, wherein said culturing occurs comprising a step of treating the stem cells with the substance that inhibits BMP signaling during the pre-differentiation stage, and a step of treating the stem cells with the substance that inhibits BMP signaling during the first few days within the first five days of the differentiation-inducing stage.

8. (Previously presented) The method according to Claim 1, wherein the substance that inhibits BMP signaling is a BMP antagonist.
9. (Previously presented) The method according to Claim 8, wherein the BMP antagonist is one or more selected from a group comprising Noggin, Chordin, fetuin, follistatin, sclerostin, DAN, Cerberus, gremlin, Dante and related proteins thereof.
10. (Previously presented) The method according to Claim 1, wherein the stem cells are mammalian-derived cells having the ability to differentiate into cardiomyocytes in vitro.
11. (Canceled)
12. (Currently amended) The method according to Claim ~~44~~ 1, wherein the pluripotent stem cells are embryonic stem cells, cells with a similar morphology to embryonic stem cells, embryonic germ cells, or multipotent adult progenitor cells.
13. (Currently amended) The method according to Claim ~~42~~ 1, wherein the pluripotent stem cells are embryonic stem cells.
14. (Canceled)
15. (Canceled)
16. (Currently amended) The method according to Claim 5, wherein said culturing occurs comprising a step of treating the stem cells with the substance that inhibits BMP signaling during within the first three days of the differentiation-inducing stage.
17. (Canceled)
18. (Currently amended) The method according to Claim 7, wherein said culturing occurs comprising a step of treating the stem cells with the substance that inhibits BMP signaling during the pre-differentiation stage, and a step of treating the stem cells with the substance that inhibits BMP signaling during within the first three days of the differentiation-inducing stage.
19. (New) The method according to claim 18, wherein said culturing occurs during the pre-differentiation stage, and at the beginning of the differentiation-inducing stage.

20. (New) A method for inducing differentiation of cardiomyocytes from pluripotent stem cells or cells derived therefrom, comprising

(1) culturing stem cells in a culture medium including a substance that inhibits BMP signaling within three days before the formation of embryoid bodies and/or within the first three days after the formation of embryoid bodies; and

(2) obtaining cardiomyocytes.

21. (New) The method according to Claim 20, wherein said culturing occurs within three days before the formation of embryoid bodies.

22. (New) The method according to Claim 20, wherein said culturing occurs within the first three days after the formation of embryoid bodies.

23. (New) The method according to Claim 20, wherein said culturing occurs within three days before the formation of embryoid bodies and within the first three days after the formation of embryoid bodies.

24. (New) The method according to Claim 23, wherein said culturing occurs within three days before the formation of embryoid bodies and immediately after the formation of embryoid bodies.